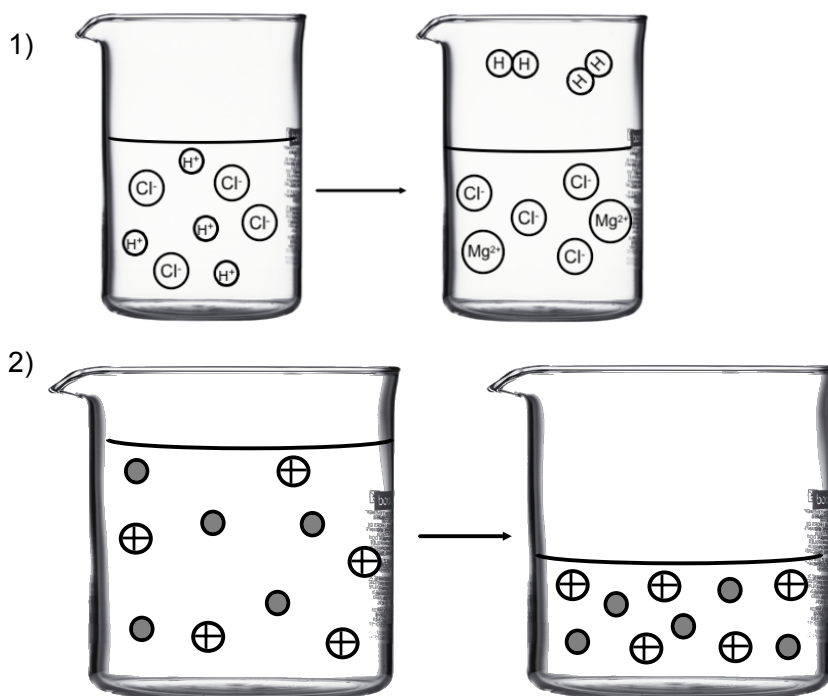


## Questions 1, 2, 9, 18, 19, 20, 79



- 9) a. Polar solutes become surrounded by polar water molecules because opposite poles are attracted to each other and become stabilized so they dissolve. Nonpolar molecules do not attract polar water molecules so they cannot dissolve.  
 b. Both will dissolve in water, but KF is a strong electrolyte because it dissolves as separate ions. Sugar is polar so it dissolves, but as a whole molecule, so it is a non-electrolyte.  
 c. RbCl is soluble in water (Rb is an alkali metal) and is a strong electrolyte. AgCl is not soluble so it would form a precipitate.  
 d.  $\text{HNO}_3$  is a strong acid so it is a strong electrolyte. CO is a polar covalent molecule so it would dissolve, but is not an electrolyte.
18. a. iv      b. ii      c. iii      d. i  
 Best picture for  $\text{HNO}_3$  is ii. None of them are good pictures for acetic acid because it is a weak acid, so only a small percent of the molecules form ions.
19.  $\text{CaCl}_2 (\text{s}) \longrightarrow \text{Ca}^{2+} (\text{aq}) + 2 \text{Cl}^- (\text{aq})$
20.  $\text{MgSO}_4 (\text{s}) \longrightarrow \text{Mg}^{2+} (\text{aq}) + \text{SO}_4^{2-} (\text{aq})$   
 $\text{NH}_4\text{NO}_3 (\text{s}) \longrightarrow \text{NH}_4^+ (\text{aq}) + \text{NO}_3^- (\text{aq})$
79. a. False, non-electrolytes like sugar can be concentrated too.  
 b. True  
 c. False, weak acid are weak electrolytes.  
 d. False, only soluble ionic compounds are strong electrolytes.